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National Institute on Drug Abuse

NIDA NOTES

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NIDA Notes is a product of the Division of Prevention and Communications, National Institute on Drug Abuse. It covers the areas of prevention research, treatment research, epidemiology, and behavioral pharmacology. Where a study is of particular interest, the reader is invited to contact the person(s) listed for further information.

This publication is intended to keep people abreast of what is happening in the drug abuse prevention and treatment field, identify resources, promote an exchange of information, and improve communications between clinicians, researchers, administrators, and policymakers. Individuals, programs, institutions, and State and local authorities are urged to keep us up to date regarding current treatment and prevention issues, recent research activities and findings, and to identify subject areas they would like highlighted in the Notes.

To help make the NIDA Notes more informative, please send items that would be of interest to others. Copies of newsletters, reports, conference proceedings, papers presented, and pertinent data from State and local sources will be appreciated. Do not hesitate to send comments or additional material on subjects covered in the Notes. Information can be sent to:

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Historical Note

The drug abuse field grew rapidly during the seventies in response to what was defined as a national drug epidemic. The initial focus was on heroin addiction, because it was perceived to be the most serious drug problem, and because of its link to crime. Public Law 92-255, passed in 1971, authorized a separate organizational entity within the Federal Government to be known as the National Institute on Drug Abuse. NIDA was established to develop and conduct comprehensive health education, training, research, and planning programs for the prevention and treatment of drug abuse. Treatment programs proliferated, support for research reached new levels, and strategies for prevention emerged.

With the passage of the Omnibus Budget Reconciliation Act of 1981 (Public Law 97-350), responsibility for the delivery of treatment and prevention services was transferred to the States. The restructuring of Federal assistance was based on a conviction that States are better able to plan, allocate funds for, and monitor health programs within their boundaries than is the Federal Government. NIDA became primarily responsible for sponsoring and conducting drug research—from biomedical research on the cellular mechanisms of drug action to clinical studies of treatment effectiveness. At the same time, prevention and communication efforts sponsored by NIDA have come to be built on a growing body of scientific knowledge about the health risks associated with drug use and the effectiveness of prevention and education strategies.

As States assumed control of health care services and systems, the Federal Government was given more responsibility for technology transfer—the dissemination of information that has relevance to public and private needs. Public Law 98-24 (1983) called for NIDA and the National Institute on Alcohol Abuse and Alcoholism to provide "extensive dissemination to States, units of local government, community organizations, and private groups, with respect to alcohol and drug abuse research findings." Public Law 98-509 (1984) emphasized the need to develop and demonstrate "new and improved methods for the dissemination of research findings and knowledge of effective strategies of early detection, prevention and treatment of drug abuse."

In producing scientific knowledge, NIDA has developed and tested new dissemination strategies. Emphasis is being placed on reaching programs and practitioners in the public and private sectors who are in a position to apply this knowledge. The need for communication between different disciplines and across geographic regions is more and more evident. The *NIDA Notes* has been developed specifically to help fill this gap. □

AIDS: A Concern for All

Researchers and treatment staff in the drug abuse field have had to become increasingly aware of the risk to intravenous (IV) drug abusers of exposure to AIDS (acquired immunodeficiency syndrome) and the dangers associated with this disease which compromises the body's natural defense system. However, less information has been available about drug abuse and AIDS, and what can be done to reduce the risks of exposure to, and transmission of, the virus and to help drug clients who have the disease or who test positive for antibodies to the AIDS virus (HTLV-III) but are asymptomatic.

Intravenous drug abusers represent the second largest group at risk for AIDS. Approximately 17 percent of the 14,200 AIDS cases recorded through October 1985 by the Centers for Disease Control (CDC) have been identified as heterosexual IV drug abusers. An additional 8 percent of AIDS cases are IV drug users who are homosexual or bisexual. Thus, one-quarter of all diagnosed AIDS cases are IV drug users. Risk for AIDS, based on appearance of the disease relative to all persons in a particular category, would appear greater for IV drug users than for any other known risk group. In addition, the AIDS mortality rates are particularly high among IV drug abusers because most drug abusers with AIDS tend to develop severe opportunistic infections, such as Pneumocystis carinii pneumonia (PCP), a parasitic infection of the lungs. On the other hand, homosexual men with AIDS are more likely to be diagnosed as having Kaposi's sarcoma, a rare form of cancer which runs its fatal course over a longer time.

AIDS is transmitted through the exchange of body fluids, including blood and semen, from an infected individual to an uninfected one. Among IV drug users this often occurs by sharing needles. Small amounts of contaminated blood left in needles or syringes can carry the HTLV-III virus from user to user. More than 95 percent of intravenous drug users—including those who inject narcotics, cocaine, or amphetamines—are reported as regularly sharing their needles. Those who frequent "shooting galleries" (gathering places where drug users share needles, syringes, cookers, and drugs) are particularly vulnerable to AIDS.

Testing of drug abuse clients in treatment programs in two New Jersey communities and in New York City's detoxification programs showed that high percentages (42-56 percent) have tested positive for the HTLV-III antibody, indicating that they have been infected with the virus, although the vast majority do not have the disease. It has been estimated that 5 to 10 percent of those antibody positive will develop AIDS in 2 years, and an additional 25 percent may develop AIDS-related complex (ARC) during that same period, showing some of the AIDS symptoms but not the full disease. Asymptomatic carriers can spread the virus to others through sexual contact or needle-sharing. The incubation period, that is the period from becoming infected to becoming symptomatic, is at least 5 years.

Other viruses, such as hepatitis, may be cofactors in the AIDS process and trigger the disease in those who carry the virus. It is not yet clear whether or to what extent drugs also attack the immune system and help to trigger AIDS among those who carry the virus.

More is being learned about the disease each day. The virus has been isolated in virtually all body fluids, including blood, semen, urine, saliva, and tears. Despite the absence of evidence that AIDS can be transmitted by casual contact, fears that the virus can be spread in this manner can have an obvious effect on drug treatment program staff and patients. Such clients can become objects of discrimination, and some program staff may be reluctant to treat clients in high-risk groups. Clients in these groups also fear discrimination from other organizations and institutions. Health care organizations, insurance companies, schools, and even funeral homes have developed new policies because of the disease and the problems associated with it. Although it is important to test individuals to find out who has been infected, high-risk patients are not eager to be tested. Many are afraid of the health consequences and also of the social stigma attached to those who find that they test positive.

Certainly, there is no question about the seriousness of AIDS given its rapid spread and its uniformly fatal consequences. Immediate steps must be taken at all levels to reduce the risks—exposure to and transmission of HTLV-III and AIDS. In recognition of this need, NIDA has initiated a strategy to work with States, communities, and national professional organizations and programs to help prevent and control the spread of AIDS.

The strategy has four major components: research, education, treatment, and policy development. In the research area, NIDA plans to expand epidemiologic and natural history studies, encourage evaluations of promising prevention and treatment strategies, and continue studies of drug effects on the immune system. In attempting to assess the extent to which HTLV-III has spread among IV drug abusers and their associates, special attention will be given to pregnant women who abuse drugs and their children, women who are sexual partners of IV drug abusers, drug users treated in emergency rooms, drug abusers in criminal justice systems, drug-using prostitutes, and other high-risk populations.

In collaboration with other agencies, organizations, and institutions, education programs will need to be targeted to drug users, prostitutes, families of drug users, drug abuse prevention and treatment personnel, and health care providers.

Through a variety of technology transfer efforts, treatment providers will be informed about AIDS, methods and procedures for blood testing, and how to counsel and refer clients who have positive blood tests. Emphasis will be placed on preventive interventions to reduce the risk of transmission of the virus. NIDA is already planning to conduct regional workshops for treatment personnel. The first series of workshops will provide basic information about AIDS and train treatment staff to work with clients who test positive (have antibodies to the virus but not the symptoms), AIDS clients, associates, friends, and families.

How are residential drug treatment programs currently addressing the AIDS issue? At this point, uniform policies and procedures have not been established. Many residential drug treatment programs are not likely to have the capability or the resources to treat AIDS patients and, as a result, may feel compelled to discharge clients who get the disease. At some point, AIDS patients become too ill to be treated in this setting. Because of concerns about the possibility of transmitting the disease to other patients, most residential programs are reluctant to assume responsibility for AIDS patients. Given the special issues and problems faced by residential drug treatment programs, NIDA is also designing a training program for residential staff.

Since uniform testing procedures have not been implemented in drug treatment programs, most drug abuse patients do not know if they have been exposed to the virus. Obviously, drug users, their families and friends, and those who provide treatment services need to know more about AIDS, the psychosocial problems associated with this disease, the modes by which it is spread, and methods of limiting exposure.

For information about AIDS research, please contact Harold M. Ginzburg, M.D., Special Assistant to the Director, National Institute on Drug Abuse, Room 10-16, 5600 Fishers Lane, Rockville, Maryland 20857. For information about NIDA's public information and programming efforts, please contact Dorynne Czechowicz, M.D., Assistant Director for Clinical and Medical Affairs, DPC, National Institute on Drug Abuse, Room 10A-53, 5600 Fishers Lane, Rockville, Maryland 20857. □

Designer Drugs: A New Concern for the Drug Abuse Community

A new drug abuse problem has emerged in several cities and there is concern that it will spread. Underground chemists have produced various synthetic compounds, known as "designer drugs," to mimic scheduled psychoactive drugs. By changing the molecular structure of a drug, chemists can change its potency, length of action, euphoric effects, and toxicity.

Designer drugs are particularly dangerous because they are produced in clandestine laboratories with little concern for public or individual safety. The drugs are likely to contain contaminants. Overdoses from these drugs are common, and numerous deaths have been attributed to their use. One of the designer drugs, MPTP, has been associated with the development of symptoms similar to Parkinson's disease. Despite what is known about the danger of these drugs, most are not illegal. In order to control the use

of a drug, the Controlled Substance Act (CSA) requires that the exact chemical structure and name of the substance be specified. Slight variants can escape regulation.

The most common designer drugs are variations of fentanyl, which is used for analgesia during anesthesia. Chemists can produce hundreds of different fentanyl congeners by changing the molecular structure of the basic chemical compound. Some of the analogs have properties similar to heroin, including 3-methyl-fentanyl, which is much more potent than heroin. Reports from California authorities indicate that fentanyl analogs may be responsible for more than 100 overdose deaths and thousands of hospital emergency room episodes.

Analogs of meperidine (trade name "Demerol"), MPPP, PEPAP, and MPTP also produce effects similar to heroin.

Analogs of phencyclidine (PCP), like PCP itself, are relatively easy to synthesize. Although PCP is controlled as a Schedule I drug of the CSA, over 35 analogs have been synthesized. Three of the analogs were placed in Schedule I of the CSA after it was learned that they were widely abused.

Several dozen analogs of amphetamine and methamphetamine have also been scheduled under CSA. MDMA (known on the street as "Ecstasy") and its parent compound, MDA, produce intoxication along with increased acoustic, visual, and tactile sensory perceptions. MDMA is reported to be widely used by college students as a euphoriant and by some physicians as an adjunct to psychotherapy. In therapeutic settings, MDMA has been given to patients to help them overcome fear, become less defensive, and allow more trust to be established between the therapist and patient (Seymour 1985). Animal studies, however, suggest that MDA causes neurotoxic effects, and that MDMA is likely to produce similar effects. As a result of these findings and of reports of widespread abuse, MDMA was placed in Schedule I of the CSA. In addition, new legislation has been proposed to prohibit the manufacturing of designer drugs.

In recognition of the danger that designer drugs pose, NIDA is supporting research projects that are designed to:

- detect and monitor the use of these drugs and the extent to which the use spreads to other geographic areas
- assess the basic mechanism of drug actions, toxicity, and clinical pathology
- determine more precisely the health consequences of using these drugs
- disseminate information to the medical community, treatment and prevention programs, and to the public at large.

For further information, please contact Dorynne Czechowicz, M.D., Assistant Director for Clinical and Medical Affairs, DPC, National Institute on Drug Abuse, Room 10A-53, 5600 Fishers Lane, Rockville, Maryland 20857.

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Smokeless Tobacco: A Health Risk to Adolescents

Smokeless tobacco products, including snuff and chewing tobacco, are of growing concern in the health community because of their popularity among children and the health risks associated with their use. Tobacco chewers place a golf-ball-size wad or "chaw" between the cheek and teeth. Snuff is placed between the lower lip and teeth where the carcinogens from the tobacco are in direct contact with the lining of the cheek. In both types of use, tobacco mixes with saliva, and the substances are absorbed through the lining of the mouth and enter the blood stream. School personnel, recreation center staff, physicians, and others in the health field must be cognizant of this problem and be prepared to employ preventive measures. It is also important for tobacco-chewing adults to be aware of their influence on youngsters.

Data from surveys in Colorado, Massachusetts, Oklahoma, and Texas indicate that rates of smokeless tobacco use are particularly high in Western States. Between 20 and 25 percent of the high school students in the three Western States (Colorado, Oklahoma, and Texas) chew tobacco or use snuff. In Texas, 55 percent of the young "dippers" started before age 13 (Office of Smoking and Health 1985). A survey of Massachusetts high school students shows that 8 percent used smokeless tobacco.

Researchers studying the prevalence of chewing tobacco among 7th, 9th, and 10th graders in three school districts found that chewing tobacco use increases over grade levels in a manner similar to cigarette smoking (Lichtenstein et al. in press). The study suggests that chewing is associated with smoking in the 7th grade but that youngsters tend to choose the preferred mode of tobacco use by the 9th and 10th grades. A youngster's chewing and chewing by friends are strongly related.

Smokeless tobacco users experience a temporary high or elevated feeling from the nicotine but, as with other stimulants, they feel more melancholy when the effects of the drug wear off than they did prior to drug use. Like cigarettes and other forms of tobacco, smokeless tobacco is addictive and dangerous to health. Researchers are finding that the consequences from chewing and/or inhaling tobacco can be much more serious than the consequences from smoking it (Van Dyk 1982).

In this regard, researchers (Gritz et al. 1981) have found that the blood nicotine level is higher among smokeless tobacco users than among smokers, and have concluded that smokeless tobacco

use is more addictive and more difficult to stop. Nicotine is absorbed directly through the lining of the mouth and enters the bloodstream quickly. It raises blood pressure and slows one's reaction time.

Investigators at the National Cancer Institute observed a fourfold increase in the risk of oral cancer among female "dippers" compared to female nontobacco users. The increased risk for cancer of the cheek and gum is nearly fiftyfold among long-term chewers. Prolonged snuff use can also cause gums to recede, periodontal destruction, and carcinomas (Office of Smoking and Health 1985).

A higher incidence of oral leukoplakia (white patches in the mouth), a possible forerunner of cancer, was also reported among smokeless tobacco users than among nonusers. Researchers believe that the increased oral cancer rates may be related to the high levels of nitrosamines (TSMA) that are found in snuff and chewing tobacco. The levels of N-nitrosonornicotine (which causes cancers of the esophagus, nasal cavity, windpipe, and lung in laboratory animals) are eight times greater in smokeless tobacco than they are in cigarette smoke. Studies on snuff tobacco also reveal high levels of carcinogenic nitrosamines which have been associated with cancer (National Cancer Institute 1983).

In view of these findings, why are increasing numbers of youngsters using smokeless tobacco? Why isn't more being done to prevent such use?

Until recently, little attention was given to smokeless tobacco because it was considered relatively safe. Few surveys of drug use included these products. Sports figures and rodeo performers could be easily identified as tobacco chewers, and celebrities advertised smokeless products on television long after cigarette commercials were banned. Chewing tobacco and snuff are not covered by the current restrictions on cigarettes, which include a warning label and a ban on TV advertising.

A number of actions and activities have recently been initiated:

- The Surgeon General has appointed a task force of scientists to study the health hazards of smokeless tobacco products.
- The Public Health Service Office on Smoking and Health will begin including smokeless tobacco in surveys.
- The Smokeless Tobacco Council, the manufacturers' trade association, has announced a program to dissuade youths from chewing and dipping. The Council will produce public service anouncements, encourage retailers to comply with age restrictions, and support efforts for an age restriction on purchase.
- Bills have been introduced by congressmen to (1) tax smokeless tobacco; and (2) require warning labels on products and in advertisements.
- On October 23, 1985, a congressional subcommittee (Energy and Commerce) approved legislation to place warning labels on smokeless tobacco products and ban advertising of these products on television and radio, beginning January 1986.
- States are also taking action to require warning labels.
- Broadcasters are supporting public service announcements.
- A number of suits have been brought against tobacco companies.

In addition, community education/prevention programs are needed at all levels to bring the message directly and clearly to families and children. In conducting examinations, physicians should examine youngsters for symptoms of use. High school coaches and sports figures can discourage use by enlightening youngsters about the dangers. Programs treating young substance abusers should certainly not neglect the problem and should provide counseling to youngsters who regularly use smokeless tobacco.

For further information, please contact Edward T. Morgan, Project Officer, DPC, National Institute on Drug Abuse, Room 10A-37, 5600 Fishers Lane, Rockville, Maryland 20857.

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An Upsurge in PCP Episodes

Although surveys indicate that levels of use for most drugs have largely stabilized or even declined in recent years, there is evidence that adverse consequences of PCP use are increasing in many areas of the country. Once thought to be a fad drug, PCP ranked fifth among all reported drugs in the number of drug-related hospital emergency room episodes reported in 1984. From 1981 to 1984 the number of PCP mentions in emergency room episodes and drug-related deaths increased steadily (NIDA 1985a). PCP emergency room mentions in the first 6 months of 1984 showed a 284 percent increase over the mentions in the first 6 months of 1981.

At the same time, indications are that PCP use is not increasing significantly in the adolescent population. The National High School Survey shows a dramatic drop in PCP use among high school seniors between 1979 (when 7 percent reported having used it in the last 12 months) and 1984 (when only 2.3 percent reported

such use). Annual prevalence of use for seniors now stands at only 2.9 percent nationwide.

A national study of drug treatment services shows that PCP was the primary drug of abuse for 4 percent (N=29,826) of the admissions to drug treatment programs in 1984 (Butynski et al. 1985), which is somewhat higher than the 2.2 percent (N=5,495) reported by the Client Oriented Data Acquisition Process (the national client reporting system managed by NIDA until 1982) in 1981. Changes in PCP-related problems have not been uniform across cities. While PCP emergency room episodes declined or leveled off in some cities (as shown in the table), other cities have had dramatic increases.

Reports from researchers (Community Epidemiology Work Group) indicate that patterns of PCP use differ from city to city and among different communities within cities (NIDA 1985b). For example, members of the work group reported:

- New Orleans: Young black PCP users commonly smoke cigarettes dipped in a PCP solution (called "wack").
- New York: PCP use is reportedly spreading, particularly among white youth in Queens.
- Los Angeles: In the first half of 1984, PCP treatment admissions were up 9.8 percent. Hispanics (44 percent) and blacks (43 percent) had the greatest number of PCP treatment admissions. Sixty-four percent of the PCP emergency room admissions in 1984 were for blacks, compared to 21 percent for Hispanics and 15 percent for whites.
- St. Louis: PCP treatment admissions have continuously increased over the past 4 years. PCP is particularly widespread in predominantly black areas of north St. Louis. The drug is used in a variety of ways: (1) a powdered form is sprinkled on cannabis; (2) cigarettes are dipped in a liquid PCP solution; (3) tablets.
- Washington, D.C.: PCP use in the Nation's capital has increased dramatically. Between January and June 1984, 17 percent of the hospital emergency room drug-related episodes involved PCP use. It is often combined with other drugs and smoked (called "boat").
- Chicago: PCP is added to cigarettes (called "happy sticks" or "joy sticks"). The powdered form of PCP (called "tic") is snorted by teenagers.

As prior studies have shown, PCP use is complex and variable. The drug is marketed in a variety of forms and as a result its potency is not easy to determine. There is also evidence that chemists have been able to produce different analogs of the drug. The effects are more unpredictable then the effects of most other drugs, causing many users to require emergency treatment. Although the prevalence of PCP use may have declined on a national level, this drug still poses a serious threat to many communities across the country.

For further information, please contact Nicholas J. Kozel, Acting Chief, Statistical and Epidemiologic Analysis Branch, DESA, National Institute on Drug Abuse, Room 11A-55, 5600 Fishers Lane, Rockville, Maryland 20857.

DAWN SYSTEM—Hospital Emergency Room Data

Trends in Number of PCP Mentions in Emergency Room Episodes in Selected Cities

	Jan-Jun 81	*Jul-Dec 81*	*Jan-Jun 82*	*Jul-Dec 82*	*Jan-Jun 83*	*Jul-Dec 83*	*Jan-Jun 84*
Los Angeles	412	796	1177	1126	1341	1564	1341
New Orleans	35	88	77	23	38	62	118
New York	260	244	236	243	310	516	484
Oklahoma City	10	31	17	10	33	40	46
St. Louis	10	6	9	14	16	23	22
San Francisco	32	16	29	32	51	52	73
Washington, D.C.	97	92	136	1175	219	332	493
TOTAL *	1387	1828	2223	2213	2565	3199	3941

* The total includes data from 26 metropolitan areas included in the DAWN study in 1983.

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Launching Media Campaigns

National media campaigns have become an important part of the Government's arsenal against drug abuse in our society. Having tested many types of messages and approaches, researchers found that people, young and old alike, respond best to serious authoritative information, based on fact rather than scare tactics. These prevention efforts, built on a growing body of scientific knowledge about the health risks associated with drug abuse, are largely responsible for the public's increased awareness that drugs are not harmless or benign substances.

A number of components have been found to be critical to the success of media campaigns. In the beginning of a campaign it is essential to become familiar with pertinent research findings, e.g., on drug use patterns and trends, attitudes, negative consequences, as well as intervention strategies proven to be effective. The next step is to develop a strategy to release research findings systematically to target audiences in an appropriate way. For example, in trying to make the public aware of the dangers of a particular drug such as PCP, one strategy would be to emphasize the harmful effects and the extent of the problem. The media campaign itself, comprised of public service announcements, publications, posters, and other supporting ma-

terial, reinforces the message and suggests solutions. A vital component to a successful campaign is marketing to ensure that a network of organizations, both public and private, are committed to the goals of the campaign.

Three recent NIDA campaigns demonstrate these components. Each was built upon knowledge gained through previous public education efforts, reinforcing the antidrug messages to the public. The first of these was the 1983 Marijuana Campaign, with the slogan "It's a Fact...Pot Hurts." As a lead-in to the campaign, NIDA released the results of the annual High School Senior Survey on Drug Abuse to the press, which showed that in 1979, 11 percent of high school seniors used marijuana every day. Later, NIDA released the 1980 and 1982 *Marijuana and Health Reports* which told of the negative health effects of marijuana, especially on young people. These negative reports about marijuana, supported by parent action groups, rebutted the promarijuana opinions often quoted in the media.

Most recently, the results of the annual high school survey have shown that students' perceptions of the negative effects of regular marijuana use have dramatically increased since 1980, while use of the drug has declined. NIDA experts believe that this success in reducing the rate of marijuana use among our youth is at least partially due to knowledge of the harmful effects of the drug gained from media reports. In addition, recent prevention research has suggested that the social influences approach, which sensitizes youth to the social pressures to use drugs and teaches them to resist, can be effective. NIDA-supported research has reported that this approach may significantly reduce the onset rate of smoking. Preliminary evidence also suggests that peer pressure strategies are effective in preventing the onset of alcohol and marijuana use at least in the short term. NIDA used this research information (see next article), as well as information gained from focus groups (interviews with users and potential users to assess attitudes and motivation) to develop messages for media campaigns.

The Marijuana Campaign was launched in May 1983 to reinforce the growing perception of marijuana's adverse health consequences and to discourage its use among 11- to 13-year-olds. The public service announcements reenacted frank discussions among 13- to 17-year-olds of how smoking marijuana affected their lives. These included accounts of impaired motivation, learning skills, and driving ability.

NIDA promoted the campaign with the help of a network of intermediary groups; chief among these were drug abuse agencies and programs at State and local levels, and national/local organizations such as PRIDE and the National Federation of Parents for Drug-Free Youth (NFP). Materials included a flyer on peer pressure, a poster, and information for parents and children on the health effects of marijuana.

"Just Say No" Campaign

The 1983-85 NIDA Drug Abuse Prevention Media Campaign, launched in the fall of 1984, was developed to reach parents and young people with drug abuse prevention messages. It was designed in cooperation with the Advertising Council, a nonprofit organization which engaged the volunteer services of the Needham Harper Worldwide advertising agency to plan and execute the media project.

Studies show that teens do respond to concerns about the health consequences of drugs and will resist peer pressure if they feel they can do so gracefully and without losing status among their friends. Through these efforts parents are being motivated to learn about drugs and communicate more effectively with their children about the dangers of drugs. These parents, in turn, may join with other parents to take a stand on fighting the drug problem at the community level. The growth of parent groups across the country and their role in stemming drug abuse attest to the success of this approach.

As a result of what has been learned, new campaign strategies are being implemented and tested. The themes of the campaign: "Just Say No" for youth ages 12-14 and "Help Your Kids to Just Say No" were integrated into radio and television public service announcements distributed to broadcasters nationally. Print materials were also distributed throughout the country to organizations and agencies, as were transit ads, posters, and brochures. Local groups were encouraged to promote the campaign by contacting their radio and television stations to air the spots and by getting their newspapers to run the advertisements. The support of local and national groups was enlisted, including the National Prevention Network, the National Hispanic Coalition, the Urban League, and national parents' groups, such as PRIDE and the National Federation of Parents for Drug-Free Youth. With NIDA's technical assistance, the National Broadcasting Company (NBC) carried the "Just Say No" slogan in its campaign last fall. The NBC campaign supports "Just Say No" clubs in elementary schools and will promote the prevention strategy through short feature stories for news programs and educational programs for schools.

Phase II of the campaign, launched in February 1985, expanded the target audience to include minority inner city young people and their parents. TV public service announcements were filmed in urban settings. Subway transit and magazine ads, and radio announcements with black and Hispanic narrators will carry antidrug messages across the country. A number of drug information flyers for adults translated into Spanish were made available to follow up the public service announcements.

The Phase II strategy was supplemented with a unique project, aimed at reaching teenagers through a music video. The 3½-minute music video promotes

the peer resistance theme in music and dance. It is being used as a film in classrooms and community settings, as well as being broadcast on cable television.

Cocaine Abuse Prevention Campaign

NIDA is now in the process of launching a new campaign with the Advertising Council. Advertising agencies have been briefed on new knowledge regarding the nature and extent of the cocaine problem, focusing on the characteristics of the young adult target population: 18- to 35-year-olds. The public education program on cocaine began in October 1984, with the release of a research monograph on cocaine, *Cocaine: Pharmacology, Effects, and Treatment of Abuse.* A second monograph, *Cocaine Use in America: Epidemiologic and Clinical Perspectives,* was released in September 1985. The first phase of this campaign is targeted to young adults in work settings, since cocaine abuse generally begins after high school and follows experience with other drugs. Most users are young adults and most are actively employed, many in high-paying jobs.

The campaign will be based partly upon new knowledge about cocaine which shows that it is a dangerous, dependence-producing drug. The primary goal is to encourage and support young people and other potential users to resist the pressure to use cocaine. Families, friends, employers, and coworkers will be secondary target audiences.

A flyer on the hazards of cocaine use has been developed; information bulletins, fact sheets, TV and radio spots are being prepared; print ads, transit ads, and articles for newspapers and magazines will soon be produced. In addition, NIDA is cosponsoring a cocaine awareness project with the entertainment industry.

In January 1986, NIDA will convene a conference with business and industry to announce the initiation of the cocaine campaign and promote special communications and prevention programs in industry. These media campaigns and others to be launched in the future will continue to build on a growing body of scientific knowledge about the health risks associated with drug abuse. Successful parent and youth prevention themes will be reinforced and highlighted through appropriate materials for special target audiences. NIDA will continue to provide effective national leadership in public drug prevention/education through these campaign efforts.

For further information, please contact Susan Lachter, Chief, Communications Services Branch, National Institute on Drug Abuse, Room 10A-53, or Avraham Forman, Deputy Chief, CSB, Room 10A-46, 5600 Fishers Lane, Rockville, Maryland 20857. □

Research on Social Inoculation Approaches to Drug Abuse Prevention

Since 1978, a number of studies have assessed the efficacy of a prevention approach, directed primarily at adolescent populations, that seeks to "inoculate" individuals against social pressures to use tobacco. Since 1983, alcohol and other substances have also been included in several of the interventions. Those interventions have been variously described as "the social influences approach, social inoculation, skills training," etc. While the interventions vary somewhat in terms of structure and persons used to conduct the intervention, the strategies can be generally categorized as involving the following:

- incorporation into school programming;
- clarification of student norms with regard to substance use, e.g., regarding rates of substance use by same-aged peers;
- social skills training, designed to allow students the capacity to refuse offerings of tobacco or other substances from their peers;
- an effort to increase adolescents' understanding of social pressures (e.g., advertising) to use licit substances;
- some discussion of health risks associated with substance abuse; and
- interventions *may* also obtain a public commitment from the student to reject tobacco and/or other substance use.

Interventions vary more markedly in their emphases on other program elements. Particularly significant among those differences are:

- the use of adolescents as opposed to adults (health educators and teachers) as intervention leaders;
- the extent to which skills training is given in areas other than those narrowly confined to the rejection of drugs, e.g., communication skills, male/female relationships, etc.; and
- the number of sessions (and length of time) devoted to the intervention and/or the use of "booster sessions," i.e., additional interventions provided at some time after the major intervention has been concluded.

Since their inception, the interventions have been linked to research efforts to assess their efficacy. At times, the research design has involved a comparison between interventions differing along a particular dimension, e.g., use of adolescent as opposed to adult intervention leaders, and at times these studies have involved a comparison of the intervention to no intervention, i.e., a control condition. In accord with the goals of these interventions, efficacy is typically measured in terms of the extent to which adolescents in one group as compared to the other group, initiate substance use (typically tobacco use); the extent to which frequency of tobacco, or other substance, use is or is not increased among adolescents already using; and the extent to which adolescents already involved in substance use terminate that use.

Not surprisingly, these studies have suffered from the problems that frequently accompany "real world" research. Specifically,

some studies have shown significant attrition from study samples. Thus, there is a loss of adolescents who start the project with the resulting possibility that individuals who remain (i.e., who are less transient and/or are not school dropouts) differ in their substance-using behaviors from those adolescents who do not remain available to the study. In addition, problems can arise in relation to the strategy that is used to obtain samples of adolescent students. For example, if classrooms are randomly assigned to an intervention and no-intervention condition, there is the risk of contamination, i.e., the members of the one group may interact with, and influence, members of the other group. However, if one draws classes from separate schools, there is the possibility that adolescents at the two schools may differ in some significant characteristics, or the schools may differ in elements potentially significant to students' use of substances (e.g., formal or informal school policies, attitudes of school staff, students' perception of staff involvement, etc.). In addition, there is concern that simply increasing the amount of attention given to one group of students in relation to a particular issue may increase their willingness to change their behaviors in the "right" direction, i.e., the Hawthorne effect may come into play. Finally, there is a concern that studies relying only on students' self-report without a biological test of drug use, e.g., saliva tests, may underreport student drug-using behaviors.

In spite of these and other research problems, it seems fair to draw certain conclusions from the more than 15 studies conducted over the past 7 years. It appears that school-based approaches can achieve some success in preventing the initiation of tobacco use (or at minimum in delaying that tobacco use to a later age). Several studies also report reductions in extent of smoking behavior, i.e., rate of cigarette smoking, in association with the use of school-based interventions. Studies were less likely to find cessation of smoking as a result of these interventions. Only a few studies also examined alcohol and marijuana use in relationship to these interventions, and while the studies to date are limited and do not show a unanimity of findings, the data *suggest* an impact on the initiation of marijuana and alcohol use.

It seems reasonable to conclude that some aspects of social inoculation strategies do make an impact on adolescents' tobacco-using behavior. However, it is unclear what aspects, or combination of aspects, of the intervention are responsible for that effect. Moreover, it is unclear to what extent intervention programs will be acceptable to, and employed by, school systems that have not been carefully selected and courted to become involved in limited research efforts. Nevertheless, study findings to date are promising and, on that basis, further efforts should be made to understand issues in the structuring and implementation of school-based programs.

Additional information is available from *Prevention Research: Deterring Drug Abuse Among Children and Adolescents,* National Institute on Drug Abuse Research Monograph 63, DHHS Publication No. (ADM) 85-1334, edited by Catherine S. Bell and Robert Battjes and available in single copies from the NIDA Clearinghouse.

For further information, please contact Catherine S. Bell, Acting Chief, Prevention Research Branch, DCR, National Institute on Drug Abuse, Room 10A-20, 5600 Fishers Lane, Rockville, Maryland 20857. □

Educating Health Care Providers

Current levels of drug abuse by youngsters and young adults represent a significant public health problem in the United States. The abuse of substances by all segments of society has had a significant impact on the health care system at a time when Federal funds for treatment are being reduced.

Primary care providers (physicians, nurses, psychologists, social workers, etc.) are in a critical position to prevent, diagnose, and intervene early in drug and alcohol abuse problems. However, studies have shown that provider attitudes and inadequate training and knowledge are often barriers to effective care of substance abusers. In an attempt to increase the involvement of medical and health professionals, NIDA and NIAAA have, in the past, supported a variety of education programs and activities including:

- the Career Teacher Program—training grants for medical school faculty,
- medical monographs on "Diagnosis and Treatment of Drug and Alcohol Abuse,"
- national and international conferences on medical education in substance abuse,
- grants to schools of social work, psychology, nursing, etc., to develop curricula and educate faculty and students,
- curriculum guides (psychiatry, family medicine, nurse practitioners, pediatrics, etc.), and
- comprehensive drug and alcohol examinations, as well as examination modules for various specialities.

NIDA's "Annotated Compendium of Resources for Training the Physician and Health Professional in Drug, Alcohol and Prescribing," which describes education resources on drugs, alcohol, and prescribing problems, is now being made available by the American Medical Association.

Current and Future Activities for Health Professions Education

In enacting Public Law 98-509, in 1984, the U.S. Congress expressed concern about the inadequacy of training for physicians in alcohol and drug abuse. Congress called for the training of health professionals (with emphasis on the medical profession) in "the identification and treatment of alcohol and drug abuse."

In August 1984, ADAMHA established a Primary Care Work Group, with representatives from the three Institutes, to develop a strategy to enhance the ability of primary care providers to identify risk factors and become more involved in prevention/intervention, diagnosis, and treatment of drug and alcohol abuse problems. The strategy includes research planning, research training, health professions education, and information dissemination and utilization.

A number of new activities have been planned to improve the capability of primary care providers in addressing drug and alcohol abuse problems, including the following:

- The identification of alcohol and drug medical education products and approaches in psychiatry, general internal medicine, pediatrics, and family medicine. Existing personnel development activities, products, and operational programs in alcohol and drug abuse medical education and training (at the undergraduate, residency, and continuing education levels) will be assessed. Recommendations and guidelines for implementation of the most efficacious programs will be established. In addition, plans will be developed to address gaps and identify ways to surmount barriers to effective drug and alcohol education in primary care.
- Increased collaboration with national professional organizations and academic institutions on health professions education, information dissemination, and knowledge utilization activities. This will be accomplished through conferences, workshops, panels, and primary care involvement in technical reviews.
- A handbook for pediatricians on prevention, diagnosis, and treatment of substance abuse problems is being produced by the American Academy of Pediatrics.
- NIAAA and NIDA held a conference on "Alcohol, Drugs, and Primary Care Physician Education: Issues, Roles, and Responsibilities" at the Eisenhower Medical Center in Rancho Mirage, California, on November 13-15. This conference will involve leaders from medical education, alcohol and drug abuse, primary care, and related fields. The conference was cosponsored by the Association for Medical Education and Research in Substance Abuse, the National Institute on Alcohol Abuse and Alcoholism, NIDA, the Annenberg Center for Health Sciences, and the Betty Ford Center of the Eisenhower Medical Center. The purpose of the conference is to develop a consensus on the minimal knowledge and skills necessary for primary care physicians in alcohol and drug abuse, the optimum roles and responsibilities of the various involved organizations, and strategies for followthrough.
- A publication on "Primary Health Care Providers in Prevention" will provide information on drug and alcohol problems for all health professionals and present strategies and approaches to enhance the role and responsibility of primary care providers in prevention. Representatives from COSSMHO (National Coalition of Hispanic Mental Health and Human Services Organizations), American Medical Association, American Academy of Pediatrics, the American Psychological Association, American Psychiatric Association, American Pharmaceutical Association, American Academy of Family Physicians, American Nursing Association, National Association of Social Workers, American Academy of Child Psychiatry, Drug and Alcohol Nursing Association, Association of Black Psychologists, National Association of Black Social Workers, and the American Medical Students Association are participating in the development of this publication.
- NIDA will hold a technical review on impaired health professionals on December 2-3, 1985. This review will focus on the nature and extent of the problem, identify prevention and treatment approaches that appear to be effective, address gaps in knowledge, and make recommendations for future research.
- Representatives of leading nursing organizations have met with ADAMHA staff and pledged their support in improving communications, knowledge transfer, and cooperation with their profession on issues related to drug and alcohol abuse.
- Corporate medical and clinical staff, together with other representatives from business and industry, are participating with NIDA in the development of a monograph on drug abuse in the workplace.
- Primary care providers will participate in the National Conference on Alcohol and Drug Abuse Prevention Approaches to be held in June 1986 for Federal and State agencies, voluntary organizations, professional organizations and societies, media foundations, industry, and other key groups.
- NIDA plans to disseminate medical information through the *AMA/GTE-Medical Information Network* (MINET), a computerized information network for the medical professional. In addition, physicians and other health practitioners will have computer programs available that provide instant access to up-to-date clinical information and protocols along with a broad range of other medical and health-related information, including data base information on drug use trends, treatment strategies, research findings, and a listing of State agencies that can be contacted for treatment referral sources.

For further information, please contact Dorynne Czechowicz, M.D., Assistant Director for Clinical and Medical Affairs, DPC, National Institute on Drug Abuse, Room 10A-53, 5600 Fishers Lane, Rockville, Maryland 20857. □

Substance Abuse Services: The National Picture

The National Association of State Alcohol and Drug Abuse Directors, Inc. (NASADAD) has reported findings from a 1984 national study of drug and alcohol services. Called the State Alcohol and Drug Abuse Profile (SADAP), the study provides information on funding levels and sources, client

characteristics, and to some extent, significant changes in treatment and prevention services.

State-administered funds for drug and alcohol services in 1984 totaled $1.3 billion, including:

- $666.9 million (49.5%) from State sources,
- $278.5 million (20.7%) from Federal sources,
- $130.1 million (9.7%) from county or local sources,
- $271.2 million (20.2%) from other sources, including private health insurance and client fees.

Approximately 78.6 percent of the funds were allocated for treatment services, 13.1 percent for prevention, and 8.3 percent for other activities (e.g., training, research, and administration).

It was determined that levels of fiscal support for drug services varied considerably among States. Through the block grant mechanism, some States were able to increase appropriations for drug services and depend on public dollars alone. The vast majority, however, developed strategies to make up for the reductions in Federal funding for treatment services. Most programs were required to establish more creative financing plans (e.g., increase third party revenues, client fees, private fund-raising efforts, and support from foundations and corporations). Some States developed collaborative efforts with the private sector.

A total of 2,632 State-supported drug treatment units were identified. From the 43 States reporting, the District of Columbia, and Puerto Rico, it was determined that there were 7,706 admissions to hospitals (2.8%), 53,643 to residential facilities (19.7%), and 210,693 (77.5%) to outpatient services. Approximately 69.0 percent of the admissions were male, 61.7 percent white, 23.9 percent black, 12.7 percent Hispanics, .8 percent American Indian or Alaskan Native, .5 percent Asian, and .4 percent not identified.

The major changes noted by State agencies include:

- a growing number of younger substance abusers entering treatment;
- an increase in the percentage of multiple substance abusers entering treatment;
- an increase in the number of primary cocaine users entering treatment.

For further information about the NASADAD study, please contact William Butynski, Ph.D., Director, National Association of Alcohol and Drug Abuse Directors, Inc., 444 North Capitol Street, N.W., Suite 530, Washington, D.C. 20001. □

Treatment of Cocaine Abuse

There is much evidence of a dramatic increase in adverse consequences associated with cocaine use. Because of the use of larger drug quantities and the shift to more hazardous modes of use (such as smoking freebase or intravenous injection) cocaine-related overdose deaths, hospital emergency room mentions, and treatment admissions continue to increase. The nearly half-million calls to the national 800-COCAINE "help line" during its first 18 months of operation (May 1983 to October 1984) also provide some indication of the extent of the public health problem. The increasing availability of cocaine has resulted in its use at virtually all socioeconomic levels.

The more we have learned about cocaine, the more pernicious its effects appear to be. Its well-established ability to induce intense drug craving makes yesterday's arguments over whether cocaine is "physically" addictive—that is, causes a well-defined withdrawal syndrome when use is discontinued—seem inconsequential. Laboratory animals will "work" harder and longer to receive cocaine injections than any other drug, ignoring all other needs. Humans having ready access to cocaine can become similarly focused in their behavior. Compulsive use despite disastrous effects on the chronic user's social and physical well-being is not uncommon. Unfortunately, casual experimentation with small quantities continues to foster the myth that cocaine is a "safe," "nonaddictive" substance. When cocaine is available, regular use can rapidly escalate to compulsive use. Moreover, freebasing and IV use, which lead to brief but very intense euphoria, can also lead to ensuing strong depressive feelings—"the higher the high, the lower the low."

Widespread cocaine experimentation has led to larger numbers of cocaine-dependent individuals and an increased demand for treatment services. Since many of those who become habitual users can afford private treatment, a variety of proprietary programs have been developed to meet their needs. Such programs may include treatment in resort-like settings providing such treatment amenities as hot baths, swimming pools, aerobic exercise programs, and elaborate recreational facilities. Treatment at this luxurious extreme is much different from treatment in an outpatient drug clinic in a low-income community.

In some programs, self-selection, high levels of treatment motivation, and strict criteria for deciding just who has completed treatment can all lead to impressive claims of treatment success. But as with other treatment outcome studies, these claims must be interpreted with caution. They are rarely based on rigorous treatment outcome research involving random assignment of clients under adequate control conditions and frequently involve highly motivated patients.

Although treatment settings vary widely, some commonalities among cocaine abusers are frequently stressed:

- Cocaine abusers are likely to be multiple drug abusers.
- Other drugs frequently abused to moderate cocaine's effects include sedative-hypnotics and alcohol, leading to an upper-downer syndrome similar to that seen with amphetamine abuse.
- Researchers as well as clinicians have reported that most patients whose primary addictive

behavior is cocaine abuse do not show underlying psychopathology.

- Clinicians also report that most patients respond best to a combination of individual and group approaches.
- Sexual dysfunction is common among heavy cocaine abusers despite cocaine's putative "aphrodisiac" qualities.

Medical Treatment of Cocaine Reactions

Cocaine overdoses may occur even at low dosages in persons particularly susceptible to the drug's effects. These effects may include tachycardia, hypertension, and cardiac arrhythymias that can prove fatal. At even slightly higher doses massive seizures can occur, with cardiorespiratory failure and death.

Although there is no specific cocaine antagonist, beta blocking drugs such as propanolol can be used to treat cardiovascular dysfunction as well as the acute anxiety reaction sometimes associated with use. Cocaine-related psychotic symptoms can be managed by use of haloperidol (Haldol). Intravenous diazepam (Valium) together with cardiorespiratory support is a common means of controlling cocaine-induced seizures.

During withdrawal, chronic high-dose cocaine abusers will need treatment for their depression, lethargy, insomnia, and irritability. Following cocaine binges, individuals are likely to be depressed and physically exhausted.

Although only a minority of cocaine abusers are believed to suffer from endogenous depression, use of tricyclic antidepressants such as desipramine may be indicated especially for this group. Desipramine may also have value in reducing "cocaine hunger" in the first several weeks of treatment even in the absence of endogenous depression. With patients who have an underlying cyclothymic disorder, lithium carbonate may be useful in treatment.

A number of other pharmacological interventions have been suggested and are under investigation. However, the clinical value of these pharmacological adjuncts remains unknown.

Treatment Components

A multimodality approach is generally recommended for treating cocaine abusers. Although differences among the cocaine-dependent individuals may dictate different treatment approaches, certain common elements have been suggested for inclusion in such programs. These services include:

- **Inpatient Services**—Inpatient services should be available even if treatment is primarily on an outpatient basis. Some cocaine users will require inpatient treatment for withdrawal and/or emergency medical and psychiatric care.
- **Mandatory Urine Screening**—Complete abstinence from all mood-altering substances and the adoption of a drug-free lifestyle should be the primary treatment goal. Mandatory urine screening has been found useful as a monitoring device in evaluating patient progress and as a means of promoting self-control. Urine testing quickly identifies individuals who are having problems maintaining abstinence and permits early intervention—before their problems get out of hand. Chronic cocaine abusers are likely to be abusers of other substances as well. Urine monitoring provides an objective means of evaluating both their progress and problems in rehabilitation.
- **Group Therapy and Self-Help Groups**—Considerable stress is placed by virtually all clinicians on the value of group therapy and of cocaine recovery support groups. Such groups play an essential role in all phases of treatment. Initially, group participation provides the patient with peer assurance that long-term abstinence can actually be achieved. The group also provides models for a drug-free lifestyle—and can help maintain the resolve to remain drug free. Since there is a continuing temptation to resume cocaine use, groups are a source of support and peer pressure *not* to do so. They also provide a locus for drug-free social activity. Groups such as A.A. and Narcotics Anonymous can provide help similar to that of cocaine support groups such as Cocaine Anonymous if the latter is unavailable or additional assistance is needed.

  In the group, emphasis is placed on open discussion of the shared problems of cocaine hunger, constructive ways of dealing with the powerful urge to resume use, and positive alternatives to drug dependency. After formal treatment is complete, support groups also provide essential followup participation in aftercare.
- **Individual Therapy**—Individual psychotherapy with the cocaine-dependent individual may be useful, but is likely to have an orientation different from that with the more usual psychiatric patient. Emphasis may be placed on difficulties in establishing basic trust and on problems of counter-dependence, anger, despair, and betrayal which are so frequently involved in the patient's drug use and lack of basic trust.
- **Exercise and Health Promotion**—Exercise and other health promotion efforts are often emphasized as a way to reduce "cocaine hunger" and enhance the patient's positive self-image. Regular vigorous exercise increases the level of endogenous endorphins producing a "natural high." Since many chronic cocaine abusers are also poorly nourished because of the drug's effects on appetite and may be debilitated in other ways as well, adequate nutrition and promotion of good health habits can be important in rehabilitation.
- **Aftercare**—Since cocaine abusers appear to be particularly vulnerable to relapse and need constant reinforcement and support, considerable emphasis is placed on the period that begins after completing a formal treatment program. This involves the development of a viable lifestyle providing sufficient rewards to continue drug free. Experts agree that there is continuing danger that the patient, believing himself or herself to be "cured," may be tempted to resume cocaine use. As with most alcoholics, there is

good reason to believe that an attempt to return to "controlled use" is likely to fail. (cf. Self-Help Groups above.)

• **Contingency Contracting**—Since many middle- or upper-class cocaine abusers are highly motivated to avoid resuming their cocaine use, contingency contracting can sometimes be of value. With this technique patient and therapist agree that resuming use will result in some agreed-upon serious consequence to the user (e.g., relinquishing a professional license, disclosure to an employer, etc.). Such a contract can be helpful in maintaining drug free behavior; however, such techniques must be used with care, given the significance of the contingency to the client.

• **Family Therapy**—Since cocaine addiction profoundly affects other members of the patient's family, some form of family therapy is often recommended. It is important to establish (or reestablish) trust and communication between the patient and the family. This can be a powerful source of support to the patient and an affirmation of the value of the "natural high" of relating intimately in contrast to drug and other artificial sources of a sense of well-being.

Although there is general agreement regarding the appropriateness of different types of treatment for cocaine abusers, much still remains to be learned. Treatment of cocaine abuse will continue to be difficult, given the strong reinforcing qualities of the drug and the serious mental and physical consequences that can result from its use. Clinicians and researchers will need to work together to test and evaluate treatment methods and techniques and determine which approaches work best for particular types of clients.

For further information, please contact John Grabowski, Ph.D., Acting Chief, Treatment Research Branch, Division of Clinical Research, National Institute on Drug Abuse, Room 10A-30, 5600 Fishers Lane, Rockville, Maryland 20857. □

Detoxification From Methadone Maintenance

Findings from a recent study by Rosenbaum (1985) shed additional light on the difficulties associated with detoxification from a methadone maintenance regimen. The issue of detoxification from methadone maintenance has become increasingly significant as some programs and States have felt greater pressures to abbreviate methadone maintenance treatment for their clients. The situation became particularly acute in the treatment populations Rosenbaum studied. Those clinics had been requested to show "just cause" for retaining clients in methadone treatment for more than 2 years. Program standards specified only a minimum length of time (15 days) within which detoxification could be accomplished, but made no demands with regard to dosage, standards, or length of time clients could remain on a detoxification regimen *within* the 2-year period. Consequently, a number of different detoxification regimens were used. Generally, however, all regimens carried out dose reductions below 20 mg with particular deliberation.

Prior studies have suggested that two differing but related kinds of problems accompany clients' detoxification and termination from a maintenance program. First, studies suggest that even most clients on a somewhat protracted methadone withdrawal regimen commonly experience some physical withdrawal symptoms, especially as doses drop below 20 mg. Therefore, particular attention should be paid to client concerns as the detoxification regimen gets below 20 mg per day, and extended detoxification regimens at this point should be further explored. It was noted that, over an extended treatment period, clients seemed to make greater progress in those situations in which they have control over their own detoxification plan (detoxifying at their own pace). Second, the literature has long suggested the importance of understanding the social and psychological factors in clients' response to the termination of treatment with particular regard to their capacity to function effectively and without drugs after treatment has ended.

Several studies have pointed to the capacity for environmental cues, in and of themselves, to stimulate withdrawal symptoms in detoxifying clients. Thus, settings in which clients formerly obtained drugs have been sufficient to induce craving and pain. At the same time, it has long been a part of clinicians' knowledge that the pressures of former associates on drug abusers to return to a drug abuse lifestyle can also be extraordinary, and may frequently be overwhelming. Indeed, through the years, recommendation has been made that individuals terminating treatment have the opportunity to relocate or, less dramatically, be helped to develop a new set of friends and activities.

Rosenbaum's findings confirm and extend those clinical observations and earlier research reports. In her sample of 100 clients, she found that individuals did experience significant withdrawal symptoms in spite of the often lengthy detoxification protocols. Acute withdrawal symptoms, when they arose, typically were reported by clients dropping below 20 mg and could last as long as 6 months after the discontinuance of methadone. Moreover, individuals reported significant psychological change and concerns. Thus, detoxifying individuals frequently reported heightened sensory awareness, some reported a felt loss of control, others reported intense anxiety, depression, etc. It seems likely that clients are responding to the deprivation of the supports provided by their programs and not just to the reduction of a pharmacological aid. Understandably, many clients reported the use of illicit drugs, and particularlyheroin, in an effort to relieve physical and psychological pressures.

Rosenbaum concludes that it is important to be aware of the crisis of termination for the detoxifying client, and to take steps to

alleviate that crisis. Clients should have access to counselors capable of providing reassurance, support, and guidance through the period of detoxification and program termination. Programs should develop structured aftercare strategies to permit reasonable follow-up and support for clients who are cutting their ties to a formal program and are making effort to establish themselves in the community. In this latter regard, programs can draw on the use of mutual support groups like Narcotics Anonymous, organize similar ex-addict support groups loosely tied to the drug abuse treatment program, or make use of reentry models which have already been developed and found effective in dealing with client concerns and problems.

The following materials relating to the latter two types of aftercare programs have been developed by NIDA and can be obtained from the National Clearinghouse for Drug Abuse Information, P.O. Box 416, Kensington, Maryland 20795:

- *Addict Aftercare: Recovery Training and Self-Help.* DHHS Publication No. (ADM) 85-1341, 1985. Authors: Zackon, F.; McAuliffe, W.; and Chien,J.
- *Manual for Setting Up Self-Help Groups of Ex-Narcotic Addicts.* DHHS Publication No. (ADM) 85-1087, 1985. Authors: Nurco, D.; Stephenson, P.; and Naesea, L.

For further information about the California study, please contact the Principal Investigator, Marsha Rosenbaum, Ph.D., Institute for Scientific Analysis, 2410 Lombard Street, San Francisco, California 94123.

Reference

Rosenbaum, M., Getting Off Methadone, Final Report submitted to NIDA, Grant R01-DA02442. June 1985. □

Drug Screening: New Technologies and Emerging Issues

As the incidence and prevalence of drug abuse in the United States have risen, drug screening tests, which began in the military and spread to the sports world, are becoming more common in the workplace. Initially, safety and security concerns gave rise to the use of drug testing in the workplace. Early testing programs were generally punitive, sometimes resulting in dismissal or denial of employment and often in both legal challenges and concerns about the reliability of tests.

More recently, many companies have developed drug screening programs as part of overall health promotion and wellness programs designed to address risk factors that may affect employees' health and productivity. Screening tests have been found to serve a positive function by identifying employees with potential drug problems early so that referral to treatment can be made as early as possible.

Preemployment drug screening as a routine personnel procedure is also increasing. It is now estimated that one of every four of the Fortune 500 companies screens job applicants for use of illicit drugs. Major corporations, manufacturers, public utility and transportation companies, and even some small businesses routinely screen all job applicants. In general, these companies will not hire applicants who are currently using illicit drugs, but may counsel them to seek treatment and reapply in a few months.

Advancing Technology

Although both urinalysis and blood tests can be used for drug screening, nearly all firms choose urinalysis. Blood testing can be done by some laboratories but urinalysis is preferred as a screening test for drugs of abuse because it is less expensive and less invasive.

Generally, urinalysis can detect whether a person has been exposed to marijuana within the past 3-5 days or consumed cocaine and/or other drugs within 24-48 hours prior to the test. The major drugs or drug categories which can be detected by urinalysis are: marijuana, phencyclidine (PCP), opiates, amphetamines, barbiturates, cocaine, benzodiazepines, alcohol, methaqualone, and methadone. Rapid urine screening techniques for marijuana were not widely available until about 4 years ago. One of the most broadly used methods (EMIT) was developed through a National Institute on Drug Abuse research contract in collaboration with industry.

Several different analytical methods are currently available to test body fluids for the presence of drugs. Thin-layer chromatography (TLC) is frequently used for low-cost, high-volume drug screening programs because it is simple, inexpensive, and detects a wide range of drugs. After the sample is purified and concentrated, the drugs are separated and identified on a glass plate coated with a thin layer of silica gel or alumina. Gas chromatography detects a wide range of drugs in biological fluids. The sample is purified and concentrated and injected into the GC which separates different molecular structures on the basis of the time it takes them to pass through a column filled with an absorbent. The retention time is different for different drugs. This method tends to be more expensive and time consuming than TLC but is also more sensitive.

A recent advancement, high pressure liquid chromatography (HPLC), is performed with a machine that uses liquid rather than gas to carry the sample through the separation column to the detector. It is used in biological research and by hospitals to monitor blood levels of therapeutic drugs and is sometimes used for urinalysis. Gas chromatography/mass spectrometry (GC/MS), a more sophisticated and costly test, has become the method of choice for confirmation of urines found positive by rapid screening methods. Very small amounts of the drugs and their metabolic end products are separated on a gas chromatograph and then detected by a mass spectrometer. The mass spectrometer detects as well as characterizes the molecule by assay of its specific molecular structure.

The most widely used methods for general screening are immunoassays. Immunoassays use drug-specific antibodies to distinguish between positive and negative samples. Antibodies are produced by injecting lab animals with a modified form of a drug which causes the animal's immune system to produce antibodies to the drug. These antibodies, purified from animal blood, are used in immunoassay kits. Immunoassays are fast and inexpensive but different immunoassays are required for different drugs. For example, the primary methods used to screen urine for marijuana use have been EMIT and RIA, which are much more sensitive than TLC. Immunoassays can also lack specificity because antibodies tend to cross-react with drugs that are similar in structure. For example, tests for amphetamines are frequently reported inaccurately because amphetamines are similar in structure to drugs used in some cold remedies (e.g., ephedrine, pseudoephedrine, etc.).

Emerging Issues

With the increasing use of drug screening programs by industry, employers must be increasingly aware of the potential issues. Appropriate policies and procedures should be established before a company does drug screening. Drug screening programs should be based on concern for the health and safety of all employees, with early identification and referral for treatment as their objective. All procedures for detection, screening, identification, and referral should, of course, be carried out with regard for the personal privacy and dignity of the worker. Once these basic policies and procedures are established, they should be made clear to employees.

Management, unions, employees, and prospective employees should be fully informed of drug policies regarding drug use and the consequences of violations. The program for drug screening should be distributed to employees in writing and should be part of all employee and union contracts. It is important to emphasize to employees that drug testing may be a requirement for keeping a job.

Another issue of concern which is closely associated with the technologies used for drug screening is the question of reliability and accuracy of the methods utilized. While some laboratory errors do occur which can result in false positives, most experts agree that accuracy should be very high if good laboratory procedures are used by well-trained and certified laboratory personnel. Quality control procedures are also extremely important. Instruments should be checked to be certain they are functioning correctly; manufacturers' protocols should be followed; known samples should be analyzed along with the unknown samples to ensure that the laboratory is producing consistent results.

When an initial screening assay indicates that a sample is positive for drugs, a confirmation assay should be performed using a different chemical method. A confirmation assay usually uses a method which is more specific than a screening assay, such as GC, GC/MS, or HPLC. Two different assays operating on different chemical principles, both giving positive results, greatly decrease the possibility of methodological error or false positives.

Because of the potential consequences of a positive urinalysis for the employee, maximum attention must be paid to the accuracy and reliability of the entire system, including laboratory quality control, chain of custody procedures, and confirmation assays.

Federal Initiatives

The National Institute on Drug Abuse continues to support a number of research studies to develop new assay techniques or to refine existing ones. In addition, the Institute is developing five new initiatives in the area of drug testing:

1. A monograph on urinalysis guidelines is planned for publication in mid-1986. This will include discussions of methods, quality control, and procedures to assure accuracy in analysis.

2. A question-and-answer leaflet has been prepared which discusses frequently asked questions about drug testing.

3. A major meeting with industry representatives is planned for the fourth week in January to discuss issues of particular concern to industry. A consensus document, summary, and guidelines for industry testing programs will be prepared for widespread distribution to corporate executives.

4. A new cocaine prevention and education campaign is underway as an important component of NIDA's program for industry. Information obtained from all of the above initiatives will be disseminated to business and industry.

5. New epidemiological efforts will be made to provide more hard data on the prevalence of drug abuse in industry and the effectiveness of drug screening programs.

For further information, please contact Michael J. Walsh, Ph.D., Chief, Clinical Behavioral Pharmacology Branch, DCR, National Institute on Drug Abuse, Room 10A-16, 5600 Fishers Lane, Rockville, Maryland 20857. □

Research Briefs

On the Process of Peer Influences in Adolescent Drug Use: A Developmental Perspective

(Kandel, D.B. *Advances in Alcohol and Substance Abuse,* 4(3-4):41-67, 1985.)

Data collected from longitudinal studies of adolescents over the last 10 years were analyzed to assess the role of friendships in adolescent drug use and adolescent development. Relational dyadic and triadic samples of adolescents matched to a parent and/or best friend and observed at one point in time as well as over time provide data on processes of personal influence. Findings show that sociodemographic characteristics are the strongest determinants of friendship formation, followed in importance by participation in illicit drug use. Adolescents coordinate their choice of friends and their values and behaviors (includ-

ing the use of marijuana) so as to maximize congruency in the friendship dyad. Parents are particularly important in influencing the future life plans of adolescents, while peers are most influential regarding the adolescent's use of illicit drugs. Peers are especially important for initiation into marijuana use, while parental factors gain in importance in the transition from marijuana to the use of other illicit drugs. Interpersonal influnces of peers on ongoing marijuana and alcohol use result from modeling and initiation more than from social reinforcement and the transmission of values.

Is There a Need for Professional Psychotherapy in Methadone Programs?

(Kleber, H.D. *Journal of Substance Abuse Treatment*, 1(1): 73-6, 1984.)

Reviews recent studies of professional psychotherapy in methadone programs and identifies some of the methodological difficulties in arriving at conclusions regarding the usefulness/effectiveness of psychotherapy in treating methadone patients. The research indicates that psychotherapy appears to be most helpful for patients with defined psychiatric diagnoses in addition to their drug diagnoses. Benefits appear to be greater when patients are treated early in their treatment programs.

Methadone-Maintained Mothers: 3-Year Follow-Up of Parental Functioning

(Fiks, K.; Johnson, H.; and Rosen, T., *The International Journal of the Addictions*, 20(5):651-660, 1985.)

Presents findings from a 3-year followup study of 57 methadone-maintained mothers and 31 matched drug-free controls who were compared on their ability to provide adequate child care, capacity for satisfying interpersonal relationships, and motivation for self-improvement. Results indicate that, as a group, methadone-maintained women functioned less adequately both as caretakers and in interpersonal relationships and were less motivated in vocational and educational pursuits than their control counterparts. The methadone-maintained mothers also presented significantly more emotional problems than the controls and were less likely to be employed 18 to 36 months after delivery. The results further support the need for special services to this population. The investigators recommend more aggressive outreach, parenting training, special assistance with housing and financial problems, and help in overcoming their social isolation and changing their lifestyles.

Drug Use in Car Accidents

(Williams, A.; Peat, M.; Crouch, D.; Wells, J.; and Finkle, B. *Drugs in Fatally Injured Young Male Drivers. Public Health Reports*, 100(1):19-25, January-February 1985.

Warren, R. Drugs detected in fatally injured drivers in the province of Ontario. *Alcohol, Drugs and Traffic Safety*. Vol. 1, Proceedings, 8th International Conference on Alcohol, Drugs and Traffic Safety, Stockholm, Sweden, 1981.

Terhune, K. The role of alcohol, marijuana and other drugs in the accidents of injured drivers. Calspan Field Services, Inc., Buffalo, NY. Prepared for U.S. Department of Transportation, National Technical Information Service. Springfield, VA, 1982.)

Officials have long been aware of the role that alcohol plays in highway fatalities but, until recently, had little information about the relationship between drug use and vehicle crashes. A study of young male drivers in California shows that two or more drugs were detected in 43 percent of the automobile fatalities. Drugs were most frequently found in combination, typically with high blood alcohol concentrations. Marijuana was detected in 37 percent and cocaine in 11 percent of the crash victims (Williams et al. 1985). A study of fatally injured drivers in Ontario, Canada, reported that 26 percent tested positive for drugs other than alcohol, with marijuana the most frequent drug (12 percent) (Warren 1981). In a study of nonfatally injured drivers admitted to hospital emergency rooms in Rochester, New York, drugs other than alcohol were detected in 22 percent (Terhune 1982). These studies indicate that more attention must be given to the role drugs play in car accidents so that appropriate preventive measures can be employed.

Factors which Differentiate Cocaine Users in Treatment from Nontreatment Users

(Chitwood, D.D., and Morningstar, P.C. *International Journal of the Addictions*, 20(3):449-459, 1985.)

Investigators compared a sample of cocaine users in drug treatment programs to a sample of cocaine users not in treatment. A structured interview schedule was administered to a purposive sample of 95 treatment clients and 75 nonclients, all of whom reported cocaine to be a primary drug of use. The treatment sample consisted of clients who had recently entered treatment, while control respondents were selected through a snowball sampling procedure designed to locate a wide variety of cocaine users in different networks. The level of cocaine use was much higher among treatment subjects, e.g., they more frequently used more than a gram of cocaine. Treatment clients were also more likely to have experienced loss of a job, marital/relationship breakup, long-term depression and cocaine overdose than were nontreatment respondents. Nontreatment users were more likely to report that their major source of income was a legal job while most treatment clients reported their primary income came from illegal activities. Cocaine users with an arrest history were much more likely to enter treatment than were cocaine users without a criminal record. Although the nontreatment cocaine users had less serious problems, the investigators found that

they also needed help with drug and drug-related problems. Outreach efforts are needed to reach cocaine users who avoid traditional treatment, often because of the stigma associated with the drug programs.

Toxicity Associated with Long-Term Intravenous Heroin and Cocaine Self-Administration in the Rat

(Bozarth, M., and Wise, R. *Journal of the American Medical Association*, 254(1):81-83, July 5, 1985.)

Laboratory rats allowed to self-administer unlimited amounts of intravenous cocaine showed a markedly higher mortality rate and significantly greater rate of deterioration in health than rats self-administering intravenous heroin. The rats using cocaine had a mortality rate after 30 days of 90 percent, compared to 36 percent mortality among the rats using heroin. The rats in the cocaine group also exhibited a different pattern of use from that of the heroin-administering rats, showing excessive cocaine binges alternating with brief periods of abstinence, compared to a more stable pattern in the heroin group. While the heroin-using rats maintained body weight, good grooming habits, and good general health, the group using cocaine showed a pronounced deterioration in all these areas. The investigators conclude that cocaine is much more toxic than heroin when used by animals with unlimited access, and that the implications for humans will become more evident as cocaine use and purity increase. □

New NIDA Publications

(Single copies of each of these publications are available from the National Clearinghouse for Drug Abuse Information, P.O. Box 416, Kensington, Maryland 20795.)

Drug Use Before and During Drug Abuse Treatment: 1978-1981 TOPS Admission Cohorts. (ADM) 85-1387. 89 pp.

The Treatment Outcome Prospective Study (TOPS) is a large-scale multi-year study of the natural history of drug abusers. The study specifically examines the therapeutic impact of treatment on clients by determining changes in drug use patterns, criminal behaviors, and productive activities.

Effects of Drugs on Driving: Driving Simulator Tests of Secobarbital, Diazepam, Marijuana, and Alcohol. (ADM) 85-1386. 21 pp.

This report summarizes a series of studies conducted under a NIDA contract to evaluate the effects of widely used drugs/drug combinations on driving behavior. Results indicate that marijuana, secobarbital, and diazepam all significantly impair the skills required for safe driving.

Research Monograph 58. Progress in the Development of Cost-Effective Treatment for Drug Abusers. (ADM) 85-1401. 188 pp.

This monograph provides information and findings from studies designed to evaluate brief, cost-efficient methods of treating drug abusers—for clinicians, policymakers, program administrators and researchers. Existing long-term treatment programs often fail to engage large numbers of drug abusers. Less costly treatments, in time and dollars, must be sought. Discussions include the use in drug abuse treatment of psychotherapy, behavior therapy, pharmacological therapy, one-person family therapy, personalized nursing, and other approaches.

Research Monograph 59. Current Research on the Consequences of Maternal Drug Abuse. (ADM) 85-1400. 113 pp.

This monograph reviews recent studies of the effects of maternal substance abuse on offspring, based on both animal and human data. Research on the effects of marijuana, methadone, PCP, alcohol, and other drugs is included. Methodological issues, including the difficulties inherent in making predictions to the human situation based upon animal data, are discussed. (Preclinical studies of prenatal drug exposure have been published separately, in Research Monograph 60.)

Treatment Process in Methadone, Residential, and Outpatient Drug-Free Programs. (ADM) 85-1288. 89 pp.

This report examines and analyzes the treatment services provided to drug abuse clients in methadone, residential, and outpatient drug-free programs. It explores services offered in terms of frequency and intensity, and places the provision of services in a historical context as well as relating services provided to clients' stated needs.

Treatment Services for Adolescent Substance Abusers. (ADM) 85-1342. 230 pp.

This book highlights and integrates what is known about adolescent substance abusers, their drug-related problems, the programs that serve them, and the treatment methods and approaches that have proven to be effective. It should serve as a guide for those who are currently involved or who plan to become involved in the treatment of adolescent substance abusers. The book includes information for diagnostic procedures, early intervention, counseling, group therapy, and family involvement. In addition, there are chapters describing how young substance abusers are treated in different modalities and settings, including alternative school settings, drug treatment centers, outpatient, residential, and court-affiliated programs.

Use of Licit and Illicit Drugs by America's High School Students -1975-1984. (ADM) 85-1394. 159 pp.

This is the eighth in an annual series reporting the drug use and related attitudes of America's high school seniors. The findings, which cover the high school classes of 1975 through 1984, result from an ongoing national research and reporting program entitled "Monitoring the Future: A

Continuing Study of the Lifestyles and Values of Youth." The program is conducted by the University of Michigan's Institute for Social Research, and is funded primarily by the National Institute on Drug Abuse. The study is also referred to as the High School Senior Survey, since the population from which each year's sample is drawn is comprised of all seniors in public and private high schools. □

New Research Grants Funded by NIDA

PREVENTION

Title: Multilevel Substance Abuse Prevention for High Risk Youth
Grant No: 1 RO1 DA/AA-03971-01X0
Description: A study on the effects of community action programs, health promotion curricula, parenting skills training, and life skills training on preventing drug abuse in high-risk, urban and rural youths.
Principal Investigator: Robert L. Hubbard, Ph.D.
Research Triangle Institute
North Carolina

Title: Structural-Strategic Family Therapy with Drug Abusers
Grant No: 1 RO1 DA/DA-03714-01X0
Description: Investigates the effectiveness of family therapy, family education classes, and group therapy in preventing drug abuse and improving family functioning among different ethnic groups.
Principal Investigator: Howard A. Liddle, Ed.D.
University of California
San Francisco, California

SMOKING

Title: Social Learning Analysis of Smoking Cessation Clinics
Grant No.: 1 RO1 DA/HL-03950-01X0
Description: A comparative evaluation of the American Lung Association, American Cancer Society, and Harry Lando (PI) Smoking Cessation Programs.
Principal Investigator: Harry A. Lando, Ph.D.
Iowa State University
Ames, Iowa

Title: Reinforcing Smoking Reductions in COPD Patients
Grant No.: 1 RO1 DA/HL-03961-01X0
Description: A study designed to develop and test behavioral and pharmacological treatment techniques to reduce cigarette smoking among patients with chronic obstructive pulmonary disease.
Principal Investigator: Thomas J. Crowley, M.D.
University of Colorado
Denver, Colorado

Title: Peripheral Reinforcing Actions of Cigarette Smoke
Grant No.: 1 RO1 DA/DA-03848-01X0
Description: A study of the reinforcing effects of cigarette smoke constituents as they are inhaled from the cigarette and make contact with the linings of the mouth, throat, and respiratory tract.
Principal Investigator: Murray E. Jarvik, M.D.
Veterans Administration Medical Center
Los Angeles, California

TREATMENT

Title: Event-Based Analysis of the Drug Abuse Treatment Career
Grant No.: 1 RO1 DA/DA-03866-01X0
Description: The investigator is conducting secondary analysis of treatment data to assess the drug abuse treatment careers of addicts and the effects of these careers on treatment outcomes.
Principal Investigator: Mary Ellen Marsden, Ph.D.
Research Triangle Institute
North Carolina

Title: Drug Abuse Treatment Process: Services and Outcomes
Grant No.: 1 RO1 DA/DA-03823-01X0
Description: An examination of the relationships between treatment services, client needs, and client outcome during treatment. Outcome variables include drug use, alcohol use, depression, and employment.
Principal Investigator: George W. Joe, Ed.D.
Texas A & M University
College Station, Texas

BEHAVIORAL PHARMACOLOGY

Title: Opioid Drug Discrimination in Humans
Grant No: 1 RO1 DA/DA-04089-01X0
Description: A research team at Johns Hopkins is developing a behavioral drug discrimination paradigm for use with humans and use it to evaluate the discriminative stimulus characteristics and the subjective, physiological, and behavioral effects of opioids.
Principal Investigator: George E. Bigelow, Ph.D.
Francis Scott Key Medical Center
Baltimore, Maryland

Title: Characterization of Benzodiazepine Withdrawal
Grant No.: 1 R01 DA/MH-03521-01A2
Description: This study is designed to assess the usefulness of a drug discrimination technique in detecting subjective signs such as anxiety arising during withdrawal from benzodiazepines.
Principal Investigator: Michael Emmett-Oglesby, Ph.D.
Texas College of Osteopathic Medicine
Fort Worth, Texas

Title: Pavlovian Mediation of Drug Self-Administration
Grant No.: 1 R01 DA/DA-03608-01A1
Description: This study examines the role of Pavlovian

	conditioning in the initiation and maintenance of morphine-reinforced operant behavior in rats.
Principal Investigator:	Christopher Cunningham, Ph.D. Oregon Health Sciences University Portland, Oregon

PRECLINICAL

Title:	Conformation-Selectivity Relations of Opioid Peptides
Grant No.:	1 R01 DA/DA-03910-01X0
Description:	The researchers are studying the conformational and structural features required for interaction of opioid ligands at distinct opioid receptor subtypes and the utilization of this information in design of new opioid agonists and antagonists.
Principal Investigator:	Henry I. Mosberg, Ph.D. University of Michigan Ann Arbor, Michigan

Title:	Opiate Withdrawal-CNS Functional and Receptor Mechanisms
Grant No.:	1 R01 DA/DA-03787-01A1
Description:	A study of regional brain binding properties to determine different classes of opiate receptors in multiple brain regions in morphine-dependent and withdrawing rates in vivo and in vitro.
Principal Investigator:	George Frederick Wooten, M.D. University of Virginia Charlottesville, Virginia

EPIDEMIOLOGY

Title:	Early to Mid-Adult Marijuana Use: A Longitudinal Study
Grant No.:	1 R01 DA/DA-03790-01A1
Description:	This is a longitudinal study of long-term marijuana use and the consequences of this use among a sample of 950 adults, who have spent at least 1 year during late adolescence as members of one of 60 communal living groups.
Principal Investigator:	Benjamin D. Zablocki, Ph.D. Rutgers University New Brunswick, New Jersey □

Conferences Scheduled

December 2-4, 1985	"Second Annual Northeast Regional Methadone Conference" Hyatt Regency Cherry Hill, New Jersey
December 15-19 1985	"The First World Congress on Drugs and Alcohol" The World Association for Prevention of Drugs and Alcohol Abuse (WAPDAA) Tel Aviv, Israel
January 15-17 1986	"The Next Ten Years" Eleventh Annual Symposium on Chemical Dependency Sacramento, California
February 6-11, 1986	"The Seventh Training Institute on Addictions" Co-sponsored by the Florida State Drug and Alcohol Abuse Association and the Institute for Integral Development Clearwater Beach, Florida
March 13-16, 1986	"Seventh National Lesbian/Gay Health Confrence and Fourth National AIDS Forum" George Washington University Washington, D.C.
March 19-22, 1986	"PRIDE International Conference on Drugs" Parents Resources Institute for Drug Education (PRIDE) Georgia World Congress Center Atlanta, Georgia
April 11-12, 1986	"We Are The World: Prevention Challenges for the Future" Maryland State Drug Abuse Administration Baltimore, Maryland
April 16-18, 1986	"Prevention '86: Designing the Future" The California State Department of Alcohol and Drug Programs Holiday Inn, Golden Gateway San Francisco, California
April 18-21, 1986	"Alcohol and the Family" The National Council on Alcoholism Western/St. Francis Hotel San Francisco, California
May 4-7, 1986	"Northeastern Conference on Alcoholism and Drug Dependence" Sheraton-Island Inn and Conference Center Newport, Rhode Island
May 18-23, 1986	"Western Institute on Addiction" Co-sponsored by New Mexico State Alcohol and Drug Bureaus and Institute for Integral Development Albuquerque, New Mexico
June 23-26, 1986	"Ohio Drug Studies Institute: Fifteenth Annual Conference on Substance Abuse" State of Ohio, Bureau of Drug Abuse Kenyon College Gambier, Ohio
July 15-18, 1986	"Southeastern Summer Conference on Alcohol, Drug and Medication Abuse" State of Georgia, Division of Mental Health and Mental Retardation DeSota Hilton Hotel Savannah, Georgia □

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